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ABSTRACT

This document was prepared to help parents, educators, and concerned citizens better understand how children and adolescents actually learn. True learning involves: (1) developing a passion for learning; (2) acquiring communication skills; (3) constructing new knowledge; (4) taking part in concrete activities; and (5) developing problem solving skills. Learning is a complex process that begins at birth and results from the interaction of children's thinking and their experiences in the outside world. The ways in which (and the ease with which) learners acquire knowledge vary greatly from the time they enter kindergarten through their progression through elementary school, middle school, and high school. Students exhibit various physical, personality, and developmental characteristics as they progress through the educational system. Some students assimilate new information with little difficulty; others need practical application and interaction to develop understanding. Learners range from those who are highly motivated and self-directed to those who see little need to be in school. For some, life experiences have been encouraging and supportive; for others, even their basic needs have been neglected. No single solution to address the capabilities and backgrounds of a diverse student body can be offered, but an understanding of learners provides a basis for confronting their needs. (MDM)

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21st century schooling

HOW CHILDREN LEARN

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How Children Learn

Dear Caring Citizen:

Lifelong learning has become imperative for those living in today's complex and changing society. It will be necessary for our children of the '90s and of the 21st Century to develop a passion for learning in order to assimilate the vast amount of knowledge now evolving.

In a world of blurring boundaries, not only geographic, but also in the structure of families, we must pay special attention to how children can best acquire knowledge. This document has been prepared to assist parents, educators, and other Indiana citizens to understand more about learners and how learners learn. It is the result of much research, deliberation, and discussion on that topic by a keenly interested group of educators working under the direction of the Indiana Curriculum Advisory Council of the Indiana State Board of Education.

Life is learning, and children begin to learn at the time of transition from the womb into our world. Therefore, when children enter school, they bring with them diverse ways of learning that were defined by the particular family and

environment into which they were born. We have learned that even when experiences are similar, individuals will most often perceive a particular event differently. It stands to reason, then, that those same individuals may need to have offered different approaches to learning when they enter our schools.

It is our hope that the ideas emerging here will promote a better understanding of learners and, thus, provide a firmer basis for addressing their needs.

H. Dean Evans
Superintendent of Public Instruction
Chairman, Indiana State Board of Education

Table of Contents — Page Number

I. Preface 1

II. Learning One's Way through Life 4

A. Making a Difference 4

B. A Passion for Learning 5

C. Communication 6

D. Construction of Knowledge 10

E. Concrete Experiences 13

F. Problem Solving 15

III. Describing the Learner from Birth through High School 18

A. Beginning with the Beginning 18

1. Newborns Enter an Alien World . . . 19

2. How Children Learn 20

3. Young Children Are Their Own First Teachers 21

Table of Contents	Page Number
4. Perceptual Learning	22
5. Children Acquire Knowledge about the Social World	22
6. Child's View of Self	23
B. Entering the World Called School	26
1. Kindergarten: A Transition Time	27
2. Elementary School: The In-between Years	32
3. Middle School Learners	42
4. High School Learners	48
IV. Summary	58
V. Selected Bibliography	60
VI. Acknowledgements	61

PREFACE

The school environment must be a place where children and adolescents have the opportunity to assume responsibility for their own learning.

The learners in our schools currently cover an age span of five years to beyond twenty. They bring to school a broad range of experiences, attitudes, cultural values, basic needs, and abilities which may enhance or complicate the process of learning. Even when experiences and ages are similar, the perceptions of each individual may be very different, which gives schools a challenge that is complex, yet achievable.

During the early years of our country, our schools were characterized as rigid: the child must fit in or drop out. Many of those who dropped out had great successes in life. Today the world is far more complex; thus, it is imperative for all of our children to have the opportunity to become successful learners. There is an ever-increasing store of information needed in order to function in a democratic society. Children will acquire a portion of that information in schools, but much of what they achieve throughout life will depend on their ability to continue to learn after leaving the formal schooling phase. The school environment must be a place where children and adolescents have the opportunity to assume responsibility for their own learning.

At the same time, the school environment is increasingly challenged to respond to the changing demographics of the families and communities from which the learners come. The rapid rise in single parent families, the persistent ills of poverty, infant mortality, child abuse, homelessness, and abuse of alcohol and other drugs create extraordinary hardships for numerous children as they make their way through school and life. The very "fabric" of childhood, as we have idyllically viewed it in the past, is being threatened by the harsh realities of contemporary society.

Discussions about learning and desires to improve learning are often relegated to discussions of only one component of learning: namely, the acquisition of knowledge which is measured by the facts, concepts, or principles that the learner is capable of recalling upon request. Learning is much broader than knowledge alone. Learning includes skills related to cognitive functioning, such as problem solving; skills related to information processing, such as classifying; skills related to communicating, such as speaking; and skills related to motoric functioning, such as running.

Additionally, learning includes dispositions or attitudes (Katz, 1987). Dispositions may be thought of as tendencies to respond to situations in certain ways. Being curious, inquisitive, creative, cooperative, industrious, or helpful cannot be taught through instruction or drill. Primarily dispositions are acquired by being around people who exhibit them, value and encourage their development, and

provide opportunities for them to be practiced. If our concern is for children and adolescents of today to become lifelong learners, then the development of desirable dispositions must not be neglected.

A paradigm of learning that emphasizes only acquisition of knowledge is filled with risks. The risks for learners revolve around limiting their ability to become "whole" beings who are capable of meeting the challenges of life. The risks for society center around neglecting the learner's development of judgment, values, and moral consciousness required to solve monumental societal problems (economic, social, and political) that facts and logic alone will not resolve.

This publication is a sensitive portrayal of learning and learners, calling attention to the prestigious body of knowledge about child and human development, which takes the reader on a journey touching heart and mind and inspires one to champion change, firmly based on research. The pressures of teaching more and teaching better must be addressed by acknowledging the complexities of the maturing process.

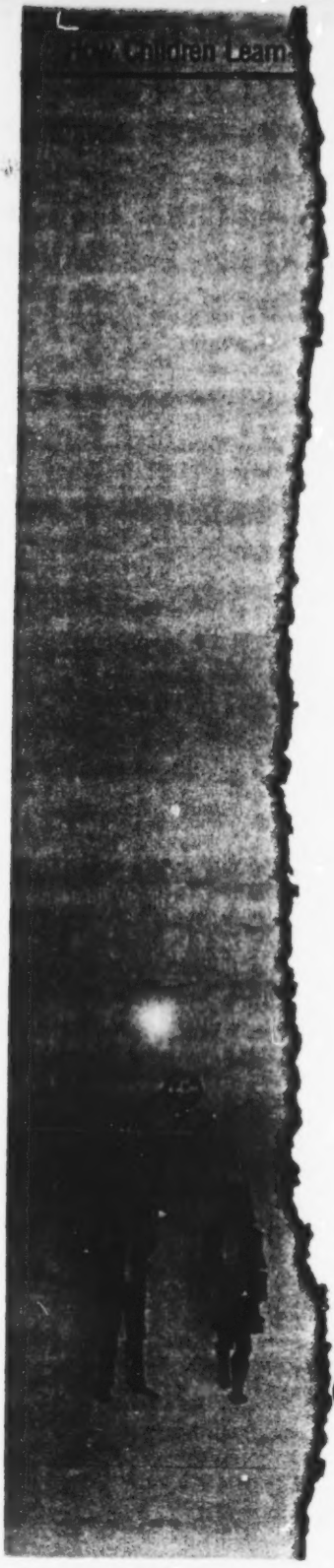
LEARNING ONE'S WAY THROUGH LIFE

MAKING A DIFFERENCE

There are important factors affecting learning, applicable at all age levels and in all subject areas. They will be manifested in different ways at different ages as children develop more complex ways of processing information and functioning. These factors are essential when focusing on children and adolescents; they play a significant role in the teaching and learning process, a role that must be encouraged if lifelong learning is considered a worthy goal.

Each of the subsequent single topics—a passion for learning, communication, construction of knowledge, concrete experiences, and problem solving—presents some insights about learning and opens a chink in the curtain, so you, the reader, may view the learning insights applied in a variety of settings.

Simply learning "the material" is a barren idea. Loving to learn and turning knowledge into action are enriching, empowering ideas. Schools must aspire to meet this challenge.



A PASSION FOR LEARNING

Learning accelerates exponentially when a person develops a passion. Developing a passion for learning is the ultimate! Developing learners is a laudable goal for schooling. When the individual interests of children and youth are given room and encouragement to grow into passions, they taste the joy of learning and knowing.

> Greg's passion was the Chicago Cubs. It began with baseball cards and television. Soon he knew the names and backgrounds of the players, their hometowns, the statistics of runs and errors, their dispositions. He knew about their farm teams, managers, umpires, Wrigley Field—and that's only the beginning. Greg's learning included development and application of math skills, reading, body movement awareness, care of baseball fields, shoes and friction, sports writing, geography, transportation, human relationships, and more. The Cubs were the vehicle through which Greg changed from a lethargic, passive person to an alive, information-gathering student. He knew the excitement of "being in the know."

Finding a special interest may be a way to make the connection between learning and the value of school for some students. Once the door is open, new avenues are apt to be explored. While pursuing a special interest, children are acquiring and practicing the basic skills of reading, writing, and recording information. They learn

how to use resources, communicate with others, and assume responsibility. Pride in one's achievement builds confidence. Tasting the joy of the pursuit of knowledge, whether following one's favorite baseball team or collecting information about planets, is inspiring. Teachers and parents must not be too judgmental too soon about what's worth being passionate about. Classroom Chair Potatoes, the "I-couldn't-care-less-about-much-of-anything" types, don't learn much.

COMMUNICATION

The art of expressing one's thoughts, ideas, and feelings begins early and continues throughout life. It may be through speaking, writing, drawing a picture, singing a song, creating a dance, or dozens of other forms of expression. At each developmental stage, children and adults find ways of communicating. Young children's ideas will be expressed in simple ways that reflect their limited perspective of the world. Adults will need to be good listeners in order to make connections that are understood in the context of the young child's thoughts.

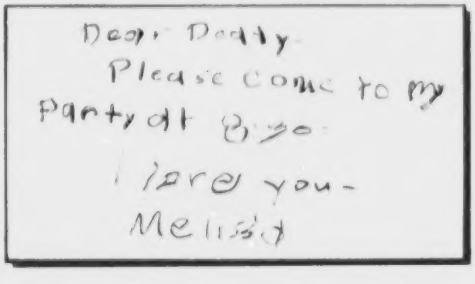
A kindergarten teacher must listen thoughtfully in addition to observing a five-year-old's communicative endeavors in order to avoid misunderstanding the young child's ideas. A painting, as described in the following example, may be viewed as "messy" even though it communicated a special message that could have been lost if adults had failed to listen and interact. Communication takes many forms. It

plays a significant role in learning. Kindergarten through Grade 12 and beyond.

Ann went to the paint easel, picked up the brush and produced this picture.

She turned to the kindergarten teacher and said, "See? I god ad awful cod and that's my sneeze: ah-ah-ah CHOO!"

Another kindergarten child wanted to send an invitation for her birthday party to her father's office. With crayon in hand she wrote:



7

Fortunately, no one had told Melissa she didn't know how to write, so she just did it. The urge to communicate is strong, but someone needs to receive the message. Adult interest and support encourage children to practice their many communicative skills. When practice is incorporated into activities that are important to the children, they are more apt to be repeated frequently and repetition leads to greater proficiency.

Communication occurs throughout the day in every classroom. Enhancing children's ability to express thoughts may occur in any area of the curriculum.

> In third-grade science Erin handled an orange and looked at it through a hand lens. She wrote everything she could think of to describe the orange.
>
> bright orange
> wrinkled cover
> brown spidery spots
> green stem, top
> bottom with a brown spot
> wrinkles, like around eyes
> It rolls, spins, bounces.
> It smells good.
> I can punch my fingernails into it.
> It fits into my hand.
> It is bigger than a tennis ball.
> It feels waxy and mostly smooth.

After cutting the orange in half midway between the stem at the top and the bottom she looked, sniffed, tasted. She continued to write. "There was a thin layer of orange around the edge of the peel, and then a white ring two cms. thick. The white could be marked with a fingernail. Inside there were wagon-wheel-like spokes. The half orange weighed five grams. There were hundreds of tiny pockets of juice . . . ."

The form of communication may vary with the content and ideas that are being expressed. In some cases it may be the spoken or written words. In other situations illustrations, charts, or graphs may be more effective method of expression.

Jim measured the temperature of one ounce of hot water he had poured into an eight-ounce styrofoam container. He repeated the process using cold water. One was 40 degrees Fahrenheit, the other was 180 degrees Fahrenheit. He recorded each. Then he dumped them together, took the reading of the two ounces of water, and recorded the temperature. He continued the process, each time taking water from an electric coffee pot and a pitcher of ice water. After six trials he graphed the results, thought about his data, and used the knowledge he had constructed to communicate the relationship between hot and cold water in a mathematical formula.

Throughout the school continuum children need opportunities to test and perfect a variety of ways of expressing their thoughts. They need to develop skill in selecting the

most effective method of conveying a message. Communication is too important to be left to card companies, television talk shows, photocopied newsletters (sent to 200 closest friends), answering machines, test scores on student record cards, and announcements made on intercoms in discount stores, air terminals, and schools.

* Learning how to write is one thing.

* Learning when to write is another.

* Writing successfully is yet another.

Students, K-12, are anxious to express their ideas. The desire to do so begins in the early years and continues when adults take time to interact, support efforts, assist when problems occur, encourage diversity of expressive skills, and value the perspective of others. Communication implies an exchange between two or more people. When students become effective in communicating, they have an important tool which will enable them to continue learning throughout life.

CONSTRUCTION OF KNOWLEDGE

Learning is enhanced as students continue to construct new knowledge. Any given human's knowledge bank was self-constructed and it truly is his/her own. As one sees more, reads more, does more, hears more, interacts more, experiments more, the opportunity exists to rearrange

knowledge, refine understandings, and see things differently, which results in the construction of new knowledge.

> Jennifer noted references to plant life in Anthony and Cleopatra. She had previously constructed a mental image of the banks of the Nile as barren. Now she wasn't sure. Are there plants there now that weren't there years ago? Were they derivatives of Shakespeare's plants? Had Shakespeare taken "poetic license" and added the plants to give special richness and ambience to the lovers' trip? Jennifer constructed new knowledge and a greater understanding of botany, literature, geography, and art as she investigated the plant issue which began as a nagging self-generated question.

Facts alone do not assure understanding. For knowledge to be meaningful to the beholder, it must be interpreted, analyzed, and arranged in an orderly manner that makes sense to the individual. Young children organize ideas and make judgments based on simple observable evidence. Their thought processing has not developed to the point of handling several variables at one time. This could be exemplified by observing Gene, a kindergartner, who made a number of mudpies and set them aside to dry. He checked them at intervals to see which one was drying the quickest. He also noticed that cracks were appearing in many of them. From his limited knowledge of the properties of soil, he concluded that the smaller ones were getting the biggest cracks. His observation was accurate; however, he had used a different mixture of soil to make

the smaller mudpies. Therefore, size alone was not the only answer. The observant teacher will need to ponder with Gene about some other experiments that he might need to try in order to test the accuracy of his ideas. The process is important for the developing child, even though the content may not be extremely significant from an adult perspective.

Children receive much of their information through spoken or printed words. Words have many meanings. As children have more life experiences, they develop insight into the many interpretations that may be made. The school environment is a place where clarification of misunderstandings should occur.

In addition to multiple meanings of words, inaccurate usage invades the communication patterns. Susan went to the store "to buy a bag of concrete." They had bags of cement, which she used to make concrete. A knowledge of the physical differences in the two and a respect for precision of language resulted. She had constructed new knowledge.

Constructing knowledge is something a learner does individually because learning is not a mantle, bestowed by parents or teachers. When information presented goes beyond a child's abilities to construct knowledge, the child moves into rote learning or tunes out the material being presented.

12

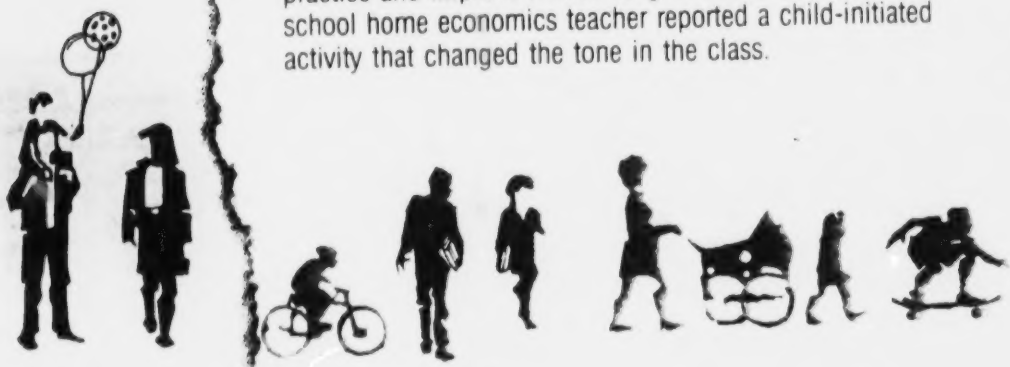
Construction and reconstruction of ideas is a continuous process. It is always personal. "No one can learn FOR me. I must do it for myself."

CONCRETE EXPERIENCES

The nature of learning is such that the process tends to take place more quickly and be retained longer when actual work with real objects and events is available to the students in any discipline at any age. Working with motors leads to an understanding of motors. Writing a real set of directions for the principal on how to get to the post office results in clarity of expository writing. Experiences in which children operate a school supply store in the building are superior to their reading about profits, losses, and marketing skills.

Entry-level learning usually demands concrete experience for success, regardless of age. Simply reading a book on how to use a computer, swim, dance, cook, drive or repair a car, or write is inadequate. One needs a computer, a pool, some music and a partner, a stove and food items, a car, and plenty of paper and pencils with large erasers.

Concrete experiences have the potential for turning factual learning into dynamic experiences through which children practice and improve a wide range of skills. A junior high school home economics teacher reported a child-initiated activity that changed the tone in the class.



When an item on a test asked: Which contains more calories, ice cream or sherbet? Most students marked sherbet. During discussion the following day, John indicated that he did not think that was a good question.

He said, "I marked what the book said, but last night I went to the supermarket, an ice cream store, and a fast-food place that sells soft ice cream, and called a dairy. Then I made this chart. Some sherbets, you will notice are high in sugar content, which shoots up the calorie count. Also, the fat content of ice cream varied from 3.5 percent to 20 percent. I felt like a journalist going after the facts and I've gotten quite a few."

John's concrete experience soon had the entire class involved in a discussion about what influences the amount of calories in food. They began to understand the true meaning of calories and linked this new knowledge with their previous knowledge and experience. Studying the properties of food became a scientific challenge for every student in the room, even for those who had previously shown little interest.

Many of the learnings that are expected to occur in school are rather abstract to students. Making a connection between what is to be learned and the learner through actual experiences provides a framework for children to test ideas and organize them in an understandable manner. Concrete experiences are effective in nurturing the satisfaction and pleasure of self-discovery whether it involves

a five-year-old learning that a magnet will attract through glass or a fifty-year-old learning to operate a computer.

PROBLEM SOLVING

The first requirement for learning to solve problems is the ability to identify REAL problems begging for solutions. Problem solving needs to take place in a safe, secure environment where the price of failure is not too great and further attempts are encouraged.

Lori's problem was that she wanted to build a block tower as high as the window sill. Previous attempts randomly using blocks of a variety of shapes and sizes had been unsuccessful. By using only rectangular blocks identical in size she made a tower taller than all the others. However, it crashed far short of the window sill.

She looked at the large square base of the toy traffic light. Next she sorted the blocks. Using only cube-shaped blocks of graduated sizes, she arranged them into a line on the floor, largest to smallest. By stacking them in that order, she had a structure that was firm but still a wee bit short of the window. A plastic dinosaur, anointed "a spire," was placed precariously on the top, and "voila," the problem was solved!

Tom, a middle school student was absent. His classmate announced that Tom had cancer. He and his family were desperately in need of comfort, a babysitter from 3-6 p.m. while his parents were at the hospital, and money. What

could Tom's homeroom do to help assuage the family's grief? How could they help alleviate some of the family's problems?

Problem solving in school must go beyond the experiences associated with science, mathematics, history, and so forth. Demonstrating positive human relation skills, learning to cope with grief or stress, and being capable of assisting under difficult circumstances are social interaction skills adults will be expected to exhibit throughout life. They must be nurtured and expanded upon at each developmental level during the school years. Even though middle school students act extremely brave, they are often disguising their true feelings of fear, concern, or fright. Opportunities to talk about real problems such as death or to plan ways to demonstrate caring and concern communicate an important message that revealing one's emotional response is not a sign of weakness.

In school unplanned circumstances arise that may lead to problem solving opportunities which parallel challenges faced in daily living.

The home economics students were preparing a luncheon for their teachers. The scheduled grocery delivery did not arrive. The chicken gravy was too thin. There was no more flour or corn starch. What could they do to solve the problem?

Involving the students in suggesting alternatives would no doubt produce a lengthy list of suggestions ranging from cancelling the luncheon to analyzing the properties of

different foods and deciding to substitute rice and serve a chicken-rice casserole.

Problem solving gives children a chance to use knowledge in a functional manner, bridging the gap between their information banks and life in the real world. When students see the relationship between what is being taught and how that knowledge has application, they tend to pursue learning tasks with spirited enthusiasm.

Confidence in one's ability to solve problems as they come along is empowering, comforting, and stimulating. It is a process that begins in the early years with simple tasks that adults may view as play and becomes more complex as students have more knowledge, higher order thinking skills, and a broader range of challenges to resolve.

DESCRIBING THE LEARNER FROM BIRTH THROUGH HIGH SCHOOL

BEGINNING WITH THE BEGINNING

The lubricant for this whole, wonderful thinking machine called child is that powerful, electric, compelling passion to find out for oneself. "I do it myself" rings across the generations in an affirmation of Robert White's classic theory that human motivation springs from an innate desire to have an effect on one's environment and to cause something to happen.

—Nancy Balaban

BEST COPY AVAILABLE

Understanding learning by beginning with the beginning requires a private journey backward, and inward, into self.

Each of us came into this world with a set of 23 chromosomes from our mother and 23 from our father, drawn in unordered fashion from ancestral pools going back at least five generations on each side of the family. Consider next the genes within each chromosome—the enormity of the pool from which our specific genetic codes were drawn.We entered this world as unique, one-of-a-kind persons. We can say now, and could have said then, "There's never been a people-package exactly like me assembled before."

The newborn sends out a powerful message:

"Remember, world, NOBODY, but NOOO-Body can punch, cajole, tease, or work me over to make me like the other kids, or to make them like me." Parents with more than one child know this. Children proceed on their own time schedules to figure out the New World. This is to say, all children, all learners, are unique.

NEWBORNS ENTER AN ALIEN WORLD

In Womb World the thermostat is locked in at a constant 98.6 degrees: the New World is usually colder with varying temperatures. Womb World is dark, always dark, even when eyes are open; New World is flooded with light. Womb World is quiet; New World is filled with noises.

Womb World provides food—the right stuff—delivered by a continuous i.v. of sorts; New World food may not be the right stuff and delivery service is not available upon demand. New World places numerous demands on infants simultaneously. There's no return ticket to Womb World.

Call it culture shock. Life is learning and the child gets on with it.

HOW CHILDREN LEARN

So it is that children become learners. Uniquely equipped, they begin by doing. They are intrinsically motivated to learn. Records of Piaget's own infants revealed that their movements, which caused a rattle to shake overhead, progressed from random to intentional. A horde of evidence confirms that the "effort" to prolong interesting events comes from the infant. No reward is required other than internal satisfaction (Piaget, 1963).

Learning is a complex process that results from the interaction of children's thinking and their experiences in the outside world. Learning is affected by the maturational level of the learner. Maturational rates include physical development in the broadest sense. Practice in walking upstairs does not cause one identical twin to do it sooner than the other, nor does practice in reciting the alphabet guarantee early reading. Maturation is an important contribution to learning because it is the framework from which learning proceeds.

YOUNG CHILDREN ARE THEIR OWN FIRST TEACHERS

Infants discover their hands, observe them at length and in detail, and work to make them move in a variety of ways. They try these strange and wonderful hands to see what they will do, and in the process they learn "handedness." Children continue to construct knowledge about their own hands as they feel various textures, draw circles, and use their hands to determine if something is hot or cold.

Their observations are tactile, visual, auditory, quantitative. They do not wait to be "taught" these exploratory skills. They proceed, on their own time schedules, to figure out New World. Infants and young children learn by interacting with objects in their environment. By pushing here, poking there, sniffing here, tasting there, infants begin to unravel the chaos that is their world. They do it because they want to know it. Born curious, the newborn is no neophyte.

A mere 48-60 months after entering New World, most children know about quantity: more or less, smaller or bigger, part or all. Experts tend to agree that young children's math knowledge is intuitive, self-directive, self-regulated, and based on appearances. Young children also have a knowledge of communication skills. Most give verbal descriptions of objects and events. Their "writing" is distinguishable from their scribbling. They say "I'm writing to TELL . . .". They pretend to "read" handwriting and print, "to see what it says." Without instruction,

speech, writing, and reading are perceived as integrated parts of the same thing: communication.

PERCEPTUAL LEARNING

Perceptual learning is described as "a highly active process by which persons extract pertinent information from the multitude of animate and inanimate objects in their environment" (Gibson and Levin, 1975). Young children "take out" from the environment information about things, as well as events. Meaning is rooted in such learning before children learn to talk. A child selects out the smell of his father's leather jacket and knows he has come home. He hears the rattle of car keys, one of many sounds in his environment, and anticipates riding in the car. Thus, children help determine their own curriculum (what they learn) through selecting from a smorgasbord of options in the environment. Later this will include the classroom. What is "taught" may not be what is learned. Knowledge is not something that is given to children: knowledge is constructed by each child.

Knowledge is not something that is given to children: knowledge is constructed by each child.

CHILDREN ACQUIRE KNOWLEDGE ABOUT THE SOCIAL WORLD

Children are close observers of people, employing all of their senses. They differentiate the sounds of approaching footsteps. They feel faces and hair, they know voices and fragrances. They observe what people do and say. They force people to interact with them. Trust and suspicion are

learned. Behaviors are copied, not always at the conscious level. Connectedness experienced in childhood tends to be lasting. Learning is enhanced when children are around adults who help them make sense of their world.

A mounting body of evidence reveals a profound similarity between babies as explorers and school children as learners. Social, intellectual, and emotional maturity is long in developing and depends upon the fulfillment of life's tasks at each state prior to adulthood (Cohen, 1983). This means that education, to succeed at any level, must be strongly rooted in developmental growth processes.

Researchers have found there is no way to force abstract, symbolic learning by a training void of concrete experience (Piaget, 1963). It has been possible to get children to recognize symbols, for example, the letters of the alphabet, pictures, and numerals, but no one seems able to get children to think with those same symbols before they themselves are ready.

CHILD'S VIEW OF SELF

A child's learning is affected greatly by whether he sees himself as a worthwhile human being capable of performing most of the tasks required or as someone who simply does not measure up to standards of others. He makes every face a mirror which reflects an image of the person's acceptance or rejection. The child's "face-reading" may

be faulty, but accuracy is not the exhilarating or devastating force: his perception rules supreme.

Expectations which fail to take into account the principles and factors affecting learning crush the child's spirit, as surely as harsh winter winds zap summer's flowers. The enabling power of activities, which cause a child to see himself as a generator of great ideas, a person who can do some wonderful things, an explorer, an investigator, an entertainer, cannot be overestimated as a factor in learning.

The child who feels valued, even when his performance is not up to par, has the resilience to pick himself up and keep himself going. A trail of failures breeds rejection often accompanied with rejection by parents, teachers, and peers. A long string of successes, interrupted by a few failures, helps the child believe "I'm an OK kid, getting better every day."

FOR FURTHER THOUGHT:

1. What can be done to help parents and teachers EXPECT differences among children and to give them confidence to act appropriately on behalf of children?

2. At what age are children in other countries introduced to symbols (reading), and how do success rates compare?

3. Young children's curiosity appears to diminish in later years. What parent and teacher behaviors hold promise for keeping curiosity alive?

ENTERING THE WORLD CALLED SCHOOL

Timidly edging in the door or attacking the school as if to conquer a new universe, children arrive at a designated point in their lives. They bring many experiences, they bring few experiences. They are exuberant and anxious to learn; they are reticent and reluctant to participate. They are healthy, strong, and happy; they are frail, tired, and listless—yet they come. They have interacted with peers and adults in Head Start, nursery school, or child-care programs; they have had few contacts outside their immediate neighborhood. They are confident and self-directed; they are uncertain and perplexed—yet they come. What do these scenarios imply as children enter the World called School?

KINDERGARTEN: A TRANSITION TIME

Kindergartners as learners are building a knowledge base; they're curious, eager, and active. They want to find out how things work, why things work, and what they can do about making things work. They call upon all of their senses to aid them in understanding their surrounding world. At the same time, they are eager to please the people who matter to them, which places their spirited enjoyment for discovery in a highly vulnerable position.

From the young child's perspective, learning and living are intertwined. When program expectations limit the opportunities for exploring, discovering, thinking, and problem solving, the meaning of school definitely takes a risky direction. Enthusiasm for learning may be dulled when school tasks no longer relate to daily living; for example, when math becomes something done at school and replaces a kindergartner's delight in demonstrating his/her ability to count the plates on the table, measure a cup of milk to bake cookies, or brag about being 42 inches tall.

Adults, who are able to view the world from a child's point of view, will appreciate the significance of learning to whistle; learning to skip; discovering that a mixture of blue and yellow paint make green; saying you are reading when you're turning the pages of your favorite story book and repeating the story verbatim (because you've had it read to you so many times); or enthusiastically announcing that, "Bill and Betty have the same letter at the beginning of

their name and it sounds the same, too." Yes, that is learning. Adults who recognize these achievements and discoveries as important milestones for five-year-olds will share the child's enthusiasm and understand the significance of the actions. Children develop as total beings. Physical control and use of the body are indicators of normal healthy growth. Being alert to how things change signals development of observational skills. Pretending to read means children are developing an association between spoken and written communication, and visual and auditory observations are an indication that discriminatory skills are developing. These characteristics are associated with children who are successful in school. They are characteristics that must be nurtured.

Five-year-olds generally become increasingly more cooperative and begin to develop close friendships. To nurture development of positive social interaction skills, young children need many opportunities to practice interactions, e.g., to agree, to disagree, to discover the advantage of verbal persuasion over physical persuasion that often characterizes the earlier years when lack of language limits ability to express thoughts, feelings, and desires. Social interaction skills are not taught. To learn them, children need to be around people who exhibit qualities, such as friendliness, cooperativeness, and sincere concern. Additionally, they need to have opportunities to practice these behaviors and experience the range of emotions that they must learn to control as they move into an expanded social world.

The ability to understand the problems of others begins in the early years and creates a foundation of human awareness that is a highly treasured trait in human beings.

Anger and distress are as natural as happiness and friendliness. Enthusiastic five-year-old builders may have conflicts when the supply of blocks is depleted before the final touches have been placed on the fire station they are constructing. Awareness that others may have a different point of view is in a developing state at this age. Emotions that are intense one minute may be totally reversed two minutes later with the guidance of an adult who would assist the children in reaching a compromise without identifying an accused. Qualities of caring, concern for others, and empathy with others are present in varying degrees in all children. A delicate balance of self-awareness and other-awareness can sustain healthy emotional growth. The ability to understand the problems of others begins in the early years and creates a foundation of human awareness that is a highly treasured trait in human beings.

Kindergartners show a great deal of pride in their ability to be responsible for themselves. Enthusiasm reigns when they can tie their own shoes, write their own names on a painting, wash the paint brushes without help, or ride the two wheeler alone. The successes they experience in mastering control of daily events stimulates the desire to take on new and more complex tasks. Possibly at no other time in the child's life will enthusiasm about accomplishments be so openly communicated to peers and significant adults in their life. Encouraging kindergartners to relate their experience provides an excellent means for understanding how they are processing information, as well as

Possibly at no other time in the

communicating to the children that their ideas are indeed important.

At the same time, we must be reminded that each child is different. Life experiences prior to kindergarten influence the interest and zest for becoming involved in classroom activities; some children are self-assured and others will be more reticent, awaiting encouragement from an understanding teacher. Some children bring a great deal of ability, demonstrating it readily, while others plod along more slowly requiring a broader range of firsthand experiences before they can understand new concepts. Young children's interactions with books and other tools for learning are intimately bound up with their impressions of what adults around them expect or value. Challenges they face are influenced by how they regard their own skills and whether they dare risk the possibility of not doing well.

Stimulating and challenging materials and activities in kindergartens will attract all children. Encouraging exploration and discovery will inspire learning. Five-year-olds are anxious to find out more about the interesting world in which they live. Curiosity is easily aroused and leads young children of this age to want to know more. It leads to new ways of finding out, such as hunting for books about dinosaurs in the library, talking to the bicycle repairman about how to fix a broken bicycle, asking the man at the apple orchard how he gets the apples from the tops of the trees, or surveying the class to determine whether members should purchase a gerbil or a hamster for the room.

At this age, learning must be linked with experiences in which children are interested; otherwise, we risk destroying a natural enthusiasm for knowing by relegating the environment to a teacher/controlled set of experiences that treats learning as telling or giving information to children.

Learning takes place in many ways, both inside and outside the classroom. At this age, learning must be linked with experiences in which children are interested; otherwise, we risk destroying a natural enthusiasm for knowing by relegating the environment to a teacher-controlled set of experiences that treats learning as telling or giving information to children.

FOR FURTHER THOUGHT:

1. Does kindergarten, the door to school, serve as a bridge for children; does it assist them with transitions from a different set of expectations than the children have learned to accommodate at home or in a prekindergarten program?

2. Should kindergarten be a training ground for first grade; should it be a tool to socialize young children and inculcate moral values; should it be expected to eradicate the consequences of poverty or should it be a time to provide a program that develops curious, questioning, and problem solving individuals who are anxious to find out about everything in their world?

ELEMENTARY SCHOOL: THE IN-BETWEEN YEARS

Children between the ages of six and ten or eleven are not so immature, cognitively, psychologically, and emotionally as the preschool child, but they have not yet achieved early adolescence. They are between phases of childhood on their way to approaching another significant time of life, adolescence. Nevertheless, one of the most important premises of human development certainly applies to elementary school children: all domains of development—physical, emotional/social, and cognitive—are integrated. Development in one domain influences or is influenced by development in the other domains.

Children in first grade are making the transition from depending on the way things appear to be, to depending

on logic and reasoning when making decisions. During the period from age seven to eleven, they are refining their abilities to organize and stabilize the surrounding world of objects and events (Piaget, 1963). Children become conscious of their own reasoning processes. They become aware of arguments in a situation in which one point of view differs from another. They are also motivated to make their own points of view known to another person, as well as to understand the other's view. Prior to this point, arguments consisted of repeated affirmations without understanding.

Elementary-school-aged children need thousands of opportunities to master thinking skills as they move toward abstract thought. Children's skills in reading and in expressing their views on what they know strengthen their ability to judge their own logical thoughts and remarks. Classroom environments that allow children to grapple with problems, such as figuring out how to publish a class newspaper, test a science experiment, write and produce a class play, or design and construct a new piece of equipment for the playground, provide opportunities to use knowledge as a basis for logical discourse with others. Children learn how to defend a position, give information, test ideas, refine or revise thoughts, improve communication skills, develop memory and recall, and practice using knowledge from every subject area (math, science, social science, language arts, and the arts). Through engaging in interactive problem-solving tasks, children become more adept at being able to distance themselves from certain

ideas that they strongly cherish. Egocentric thought (self-centeredness), according to Piaget (1963), impoverishes analysis. When thoughts are not challenged or reflected upon, they cannot evolve into more sophisticated, less egocentric ideas.

A central part of all problem solving is the asking of questions. During the early years in elementary school, children are curious, enthusiastic, and uninhibited in seeking information. They want to know; they ask questions. As children move toward the middle and later years in elementary school, changes occur that inhibit them from freely asking questions. Children become more conscious of peer opinion and do not want to appear uninformed; adults may lack interest in pondering ideas with them, and curricular expectations may not provide opportunities for developing questioning skills. Involving children in thought problems that require more information to be resolved, encourages children to raise the questions

When thoughts are not challenged or reflected upon, they cannot evolve into more sophisticated, less egocentric ideas.

that will guide their decisions. For example, the class is going on a camping trip. How do we choose the best place? Before a decision is made, we will need to know such things as: Will we walk or have transportation (in order to determine proximity of camp site)? Do we need a place to cook our food, or are we taking ready-to-eat things? Do we need a place that has water or can we carry enough with us? Are we going to study plants and trees or frogs, tadpoles, and fish (need a site with trees and/or pond)? Do we need a shelter in case of bad weather or will we postpone our trip? Through experience, children learn the necessity of asking questions for clarity in solving problems.

The physical growth of elementary school children will not increase as rapidly as it will in the adolescent years, nor as rapidly as it did in earlier years. Some children will grow larger and may begin puberty at about eight or nine; many will start their spurt of growth when they are about ten or eleven. Children in the later years may be experiencing body changes and become more sensitive to people and things around them. As body proportions change, children may tease or taunt each other. Victims of taunting and teasing need the empathy of a thoughtful adult who understands the brunt of childhood forms of behavior.

The motor skills acquired by children in this age group vary from time to time. At some point in the six-to-nine-year-old period, coordination and rhythmic movements are well controlled. As bodies change in proportion (arms grow

longer, torso and/or legs lengthen), the coordinated rhythmic movement is replaced with prowess in running, reaching, and acrobatics. The friends children choose, the preferences children have for the way they want to be perceived, and their social and cultural environment at any given time will influence their participation in physical activities. Gender-related stereotypes, unfortunately, often prevail: girls who climb trees are "tomboys," boys who are not tough are "wimps."

Because of their broadening circles of friends and the urgency of the need for their approval, elementary school children may engage in risky challenges without considering the dangers. They need to know what precautions are necessary to protect themselves from their growing motor skills and their curiosity about their own prowess.

School life occupies a large percentage of the day for elementary school children. They experience many different and conflicting emotions relating to self-understanding because of their correct or incorrect perception of other people's reaction to them. Emotions are developed in the context of social groups. From the family, children learn about that particular social group's values, what it expects, and what it rejects. From peers they may learn conflicting values. Children struggle with these discrepancies. These struggles may influence the development of a conscience and empathy, cause rejection of the value orientation from home, or generate distress and confusion. Nevertheless, the social learning that takes place is

Learning is never emotion free.

important to the total development of elementary school children, and it has a tremendous impact on their ability to attend to academic pursuits within the classroom. Learning is never emotion free.

At this age, identity seeking may cause children to respond in ways that appear atypical or unusual to teachers and parents. A child may try out, to some degree, various role characteristics which appear to be new. Incongruencies between impressions one has of self when certain behaviors manifest themselves and of how others view those behaviors is a test of one's self-perception. The degree of congruence or incongruence causes an emotional response of pleasure, self-satisfaction, pride, shame, regret, or guilt within the child. Adults' emotional expectations for children in elementary years are often vague, and they may fail to recognize that emotional development is not initially in place at birth but arises in the process of social experience and activity that is continuous and becomes more complex as children mature. Giving children opportunities to make choices places the onus on them to accept the implications for certain behaviors they exhibit. At times they want to be mature and independent, and at other times they do not feel sure enough of themselves and do not want to rule out any choices. This indecisiveness depicts their emotional upheaval as they struggle with maturity and may surface in unreasonableness, irritation, and unjustifiable behavior.

Children often need assistance in learning to interpret the behaviors of others. When they perceive someone as being unkind or vindictive, they tend to retaliate for self-protection of a bruised ego. Nonaccusatory discussions lead to an awareness of others' perspectives. Between the ages of seven and nine, children form relationships that can be sustained for a longer period of time than was possible earlier. They can disagree angrily and argue with each other, yet return to being friends. As they mature, they acquire a broader range of responses that become a part of their interactions with other people. Even though they do not know precisely what to expect when they enter into a new activity with others, they do expect to act on cues they receive from the behavior of others. Elementary school children must neither be deprived of these experiences,

Children often need assistance in learning to interpret the behaviors of others.

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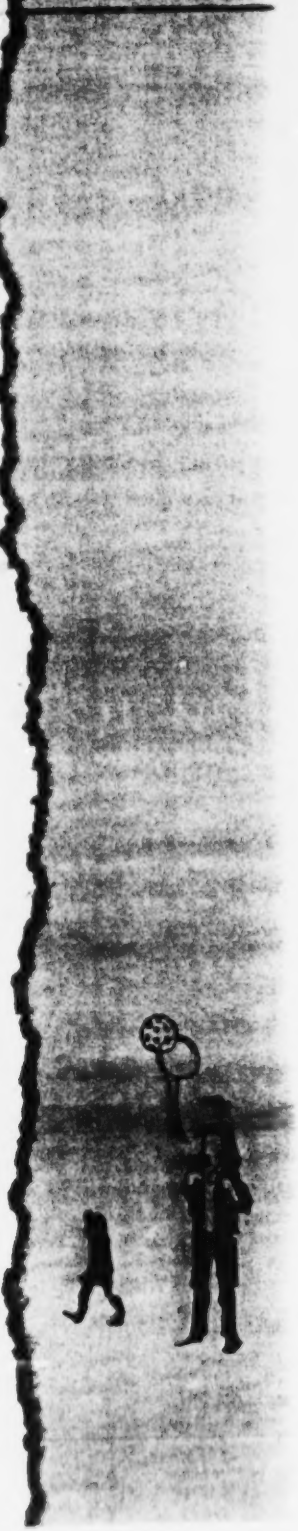
nor be deprived of adult assistance in building a positive repertoire of responses.

Some children exhibit rapid mood swings. Laughing, teasing, and playful tussling may provoke a discordant response from one of the parties involved. A child who arrives at school in a pleasant mood may encounter an unpleasant event which changes his/her treatment of others to sullen or hostile. Sensitive teachers recognize these mood changes and begin to ameliorate the intensity through their responses. These ebbs and flows, actions and reactions, are interpreted in various ways depending on the ages of the children involved. Learning of this type occurs on the spot, often unanticipated by the parties involved. The complexity in social interaction situations increases both with more knowledge and with less

39

knowledge. How children choose to mediate or modify what is learned in social interactions depends on their intellectual capacities, temperament, mood, self-concept, and interpretative skills. To a great extent this is dependent upon how parents and teachers have helped them to understand behavior.

During each of the elementary school years, new struggles regarding social/emotional, physical, and cognitive development are occurring in the lives of the children. At no point will change cease to occur. For some children, the struggles associated with thriving are almost nonexistent; for others, the trauma and conflicts render them almost nonfunctional. Adults, who care for and teach elementary school children, strongly influence their well-being; they must be sensitive to their integrated development and learning.



FOR FURTHER THOUGHT:

1. Does our present system of specified grades with a body of knowledge associated with each grade accommodate the diverse growth patterns (spurts and plateaus) that elementary school children exhibit?

2. Does the elementary school curriculum encourage problem solving, development of higher-order thinking skills, and application of knowledge, or does it focus on acquisition that is easily measured by tests?

3. Some reports indicate that creativity and enthusiasm for learning begin to diminish by grades 2 and 3. Why?

MIDDLE SCHOOL LEARNERS

The middle school has been described as the "catchment area" of American education. It is the area where kids from the highest grade of overcrowded elementary schools, grade 5 or 6, and kids from the lowest grade of high school, grade 9, meet on neutral ground with students in grades 7 and 8 for the stated purpose of continuing to use whatever knowledge and skills they have acquired in their elementary schools to prepare for life in the fast lane of instant adulthood.

This level of schooling is still a "no person's land" that tries to bridge the gap between the supportive elementary school classroom and the impersonal expectations of most schedule-driven high schools (Haberman, 1988). The clientele include children with single classroom, integrated curriculum needs, and adolescents.

Adolescence is defined in a variety of ways, but most often it refers to the period between childhood and mature adulthood. It is a chaotic period characterized by enormous differences in rate of physical growth, sexual maturity, and emotional, social, and cognitive development. Thus, the age range represented by the term adolescence defies definition (Elkind, 1981).

Wherever a broad range of developmental levels exists under one umbrella, as it does in the middle school, a wide variety of developmentally appropriate learning styles

is inevitable. These are affected by pressures of societal expectation. It is at this point in children's lives when education becomes test-driven. Doing well on tests may become the substitute for developing understanding and involvement in investigative or problem-solving activities crucial to understanding what history and science are about. Writing may be relegated to filling in blanks. Ideas may go unexamined while children perfect rote memory techniques to take them through test after test, purported to be the mark of success.

Their physical development is likely to exceed both their emotional development and their rational, higher-order thought processes. Settling disagreements by physical force and becoming sexually active without higher-order thought processes and adequate emotional development, put many adolescents in the high risk area.

Attempts to "track" students as a system for dealing with diversity has, for the most part, been found to be unsuccessful and often destructive to self-esteem, which in turn affects learning. At play here is the principle of the recursive cycle (Katz, 1987); once an individual has been labeled with a given behavior or characteristic (such as those resulting in the assignment to a low tracking group), reactions to him or her tend to increase the chances that he or she will display MORE of the behavior or characteristic. Children who are attractive, friendly, likable, and smart tend to elicit warm, positive responses from others. They become more friendly, attractive, and likable and better in academic pursuits. The down side is that students

who are viewed as dull, unattractive, and unfriendly, and whose behaviors are disliked by their peers tend to become more so. The likelihood increases that they will be avoided or rejected, and the cycle becomes well established.

Being accepted by someone tends to be paramount in the middle school child's need system. The social learning which took place in the early years plays a significant role in determining how middle school children cope with problems that are likely to emerge in their lives as adolescents. The school that matches curriculum to student needs is making an attempt to break this disfunctional cycle. Small group work helps a teacher identify a student's interactive patterns and directs that student toward productive ways of gaining approval. Improved cognitive learning is likely to follow.

Growth spurts hit students at widely differing times. These spurts tend to be accompanied by a strong psychological need to understand the body's physical changes, as well as by a measurable decline in test scores. Learning appears to be placed "on hold" while physical development takes over.

Learning, influenced by the physical, social, and emotional self, is somewhat analogous to the passengers on a roller coaster. Some survive the peaks and valleys because of a strong sense of direction and self, and some insist on taking the ride with a support group. Some approach the ride only after having understood roller coasters: how they work, length of trip, and safety mechanisms.

Knowledge of their own body changes, and understanding alternative ways of dealing with those changes, are basic needs for middle school learners. Nationally, more than half of the students in this age group become sexually active, unaware of the lifetime and life-threatening perils that may accompany these explorations.

Understanding and accepting self is curriculum priority number one. Adults who work with adolescents must be compassionate with all, must operate from a solid knowledge base, and must be masters at connecting with students. They must understand adolescent behaviors. These are matters of both body and heart.

Learning in academic areas is enhanced when students are actively involved. After viewing a film of Romeo and Juliet, students need to talk about their feelings and alternative behaviors (to suicide, for example). Without the opportunity for interactive learning in class, students will join groups outside of school because their needs to interact reach a peak in adolescence. The opportunities for group interactive learning in academic areas may be lost.

Being part of a group is a developmental need which must be met.

In one middle school, the achievement of students with low-reading ability and low interest in reading soared when the reading books and worksheets were shelved and the Indiana Drivers' License Manual became the text.

In a math class of low-interest students, the theme for the semester was the school. All mathematical operations from the text were artfully incorporated into the lessons, and activities ran the gamut from measuring concrete blocks and counting them, to figuring the area of one classroom wall. Mathematical operations expanded to room, to building wing. Students' concepts of space, area, and distance were so well honed that, unlike many students entering college, they had no trouble with multiplying inches and feet and understanding the results. They had mental images of SQUARE feet. That class designed and installed a circular, concrete flagpole base. (Yes, that was a CONCRETE experience!)

According to Haberman (1988), other societies, particularly those in the Third World:

> demonstrate that when young adolescents are given responsibilities deemed genuinely useful by the larger society and not kept locked up in institutions that reasonable people will not even enter, young adolescents react responsibly.

FOR FURTHER THOUGHT:

1. What are the profiles of adolescents who are successful in middle school?

2. Do departmental programs within the middle school provide adequate peer support groups for learning?

3. Are the learning experiences in the middle school functional, relevant, and meeting the needs of the students in the adolescent's world of here and now? Do you know schools where curricula have been restructured to allow for functional learning?

4. Individual diverse learners require a diverse curriculum. Should consideration be given to fewer grade levels in the middle school, decentralization of the middle school, a core curriculum, curricular emphasis on learner needs, such as sexuality, and programs in environmental education?

HIGH SCHOOL LEARNERS

The American high school student body represents the largest heterogeneous group of which the students have ever been or ever will be a part. Upon graduation or leaving school, they will seek out groups, for the most part, on their own.

High schools have a Pied Piper quality. Their clientele, as children, were lured first to follow along with their age group to a fairly small neighborhood school. Not content to serve such small groups forever, the District Pied Piper gathered up children from all elementary schools in a geographic area to form a larger group representing a greater diversity in backgrounds and deposited them in a middle school. At the end of middle school, the Education Conglomerate Merger, executed by the Pied Piper, shuttled children from many middle schools into one huge high school, forming an even more diverse population. The student body may have as many as 4,000 individuals. The group varies more in abilities, values, philosophies, behaviors, and other attributes than do army volunteers, members attending a political convention, a religious group, students attending a university, or employees in the largest industrial plant in the country.

High schools vary in size, purpose, structure, and student development and achievement. According to a number of recent reports on school reform, the large, comprehensive high school is in serious trouble. Current research supports breaking large urban schools into "schools-within-

schools" and grouping students into "families" in which they will receive a more personalized education. An environment that provides consistent and dependable contacts with adults, who are sincerely committed to the tasks of schooling, sets the stage for understanding individual needs, both academic and personal. This must be accomplished if schools are going to be effective. Young adolescents are capable of assuming responsibilities and leadership roles; however, these skills are still in a developing state and provision must be made to provide guidance when challenges become complex.

High school students are likely to attend school in a multicultural environment about which many of them are relatively uninformed.

High school students are likely to attend school in a multicultural environment about which many of them are relatively uninformed. Each student will bring a set of beliefs about persons of a race or ethnic group other than his/her own. Some will hold beliefs that are intense and deeply entrenched; other students will have had different life experiences and will be more receptive of others. These beliefs are the base from which our attitudes and actions are formed.

Changing attitudes come about through being accurately informed, having opportunities for open discussions to clarify thinking, and being able to disagree without being accused. It is a gradual process in which one modifies the values established in the home and immediate community and resolves the personal conflicts. Understanding the values, life styles, religious beliefs, and customs of various cultural and ethnic groups helps one develop an appreciation for cultural diversity. In addition, such understanding

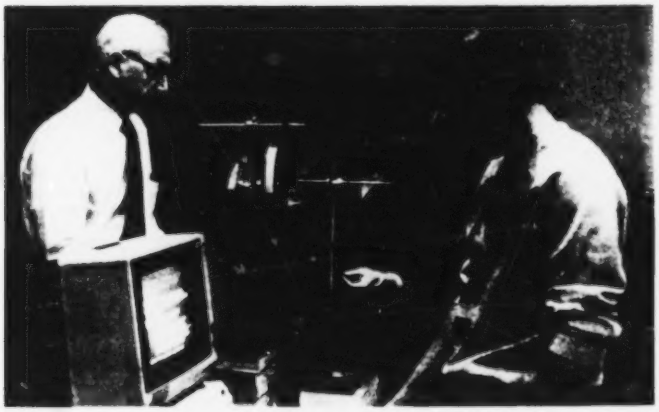
may alleviate apprehension and conflict caused by fear, misinformation, and prejudice. The high school curriculum that integrates multicultural experiences in all disciplines provides students with the opportunity to discuss differences, clarify misunderstandings, and develop an appreciation for the contributions of all ethnic groups or races. Denying high school students opportunities to explore these differences fails to prepare them to interact in their immediate environment, as well as to function in a global society.

Within the culture of school, students exhibit many personalities while trying to mesh their wants and needs with nonstatic standards of society. Each individual affects others and in turn is affected by the environment. Students seek recognition, respect, fulfilling social interactions, group acceptance, self-expression, success, security, freedom, and happiness. They are concerned with socialization skills, popularity, appearance, controlling their tempers, jealousy, alienation between themselves and their parents, sibling rivalry, rejection

for doing too poorly or too well, career direction, a fear of failure, self-protection, and survival. These are neither selfish nor unreasonable concerns. They are part of the realization that adulthood is approaching and responsibility for becoming a self-sufficient, productive member of society is an expectation.

While high school students need freedom from dependence upon their families, associations with the opposite sex, self-reliance, and a value system, they are caught in a world of contradictions, one in which they have to make tough choices between conflicting knowledge and values. They process what they have heard, read, and seen about being healthy and weigh that information against gaining prestige by smoking or acquiring other unhealthy behaviors because of peer pressure. Other dichotomies include not having sex but being sexy, being good but still being "one of the boys," seeing America as a land of opportunity for all but not wanting that type of person to reside or work next door. Coping with discrepancies is difficult for young people on the way to adulthood. Significant adults are needed to provide reassurance when conflicts are overwhelming. Showing confidence in the student's ability to complete a task, assume responsibility, or take on a leadership role builds the individual's strength needed to remain free from being compelled to "follow-the-group" in an endeavor to "be someone."

Cultural expectations have resulted in adolescent boys acquiring significantly more information in math, physical



science, aeronautics, electronics, mechanics, and sports than girls do. Boys still exhibit significantly larger score gains on aptitude tests in mechanical reasoning, visualization in three dimensions, and abstract reasoning, but trail girls significantly in mastery of literary information, vocabulary, spelling, and home economics. This dichotomy is now disappearing, but school personnel should remain sensitive to sex-role stereotyping in counseling and curricular offerings.

Although their individual personalities have been shaped by culture-dominated influences since childhood, high schoolers are especially susceptible to societal pressures during the teen years. Self-awareness is established through testing one's role in relationship to others. Throughout the school years, students seek to find their

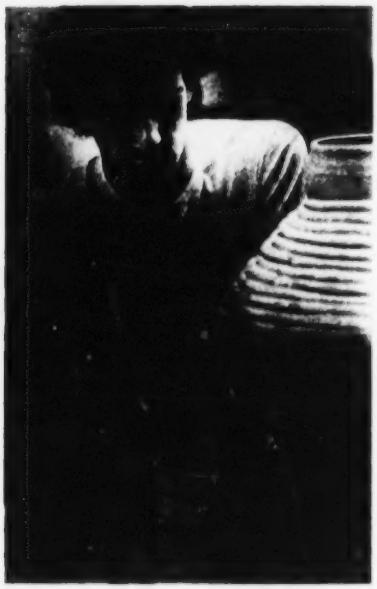
place in their group. In high school, they may seek success and acceptance through competition in sports, academics, the arts, and human relationships. In their quests to achieve individual freedom, they make changes and adaptations along the way. Those behaviors which bring personal satisfaction are likely to be repeated, even if they do not mesh with the goals of schooling. Adults need to demonstrate understanding, tolerance, and a willingness to assist in refocusing behaviors which sometimes become extreme as adolescents struggle to find comfortable and realistic ways of being accepted and valued.

The physical energies, intellectual abilities, and emotional needs, as well as the kinds of activities which they find pleasurable are, by and large, representative of the interests of those who matter to them. They are influenced constantly by both their individual desires and cultural factors; they are embroiled in turmoil brought about by inner motivation and external stimulation.

Displaying decision-making freedom is based partially on previous experiences and partially on present adult examples. The high school students, who as children developed attitudes of cooperation and submission to adult authority, may have trouble expressing their need for independence. While outwardly appearing submissive, inwardly they are tormented by resentment and frustration, thereby stymieing development of a constructive, outgoing personality.

Attempting to achieve a compromise between current differing cultural mores and outdated ones, high school students may exhibit aggressive or defiant attitudes, expecially toward their parents and parental values. Further, they may vie for a place in their chosen cultural group without a realistic understanding of the group's standards. When they adopt what they consider acceptable behavior and find their peers do not adopt these behaviors, confusion and insecurity may result in antisocial behavior. On the other hand, teenagers who have been encouraged throughout their early years to develop their own personalities with little adult guidance may be selfish in their desire to satisfy their needs and wants. As a result, they may be deflated when attempting to dominate or defy the wishes of their peer associates.

High school students are not content to sit passively and "be taught." Cast in a passive-reactive role, adolescents react irresponsibly when they have no authority to make decisions or take independent action. Just as being dominated by authority carries with it a lack of responsibility, demands for obedience generate disobedience. Given the freedom to do so, high school students are capable and anxious to initiate activities that allow them to use knowledge in a functional manner. For some students, abstract learning, which places the learner in the role of assimilating information and making interpretations, is gratifying. For others, seeing the relationship between knowledge and its purpose requires actual experience.



Respect and recognition in their school life is brought about by a challenge to learn something which the students view as personally meaningful. Conflict arises because parents and teachers wish for them to excel scholastically, but fail to allow them time to accommodate other developing adolescent needs. They need involvement in social affairs and opportunities to participate in activities such as, drama club and musical production, debating, publishing a school newspaper, or athletics. These activities give students an opportunity to apply knowledge, assume responsibility, develop leadership abilities, and experience the challenge of cooperative endeavors. Meeting the social interaction needs of high school students through dances, parties, and other planned school functions provides a balance that generates a positive attitude among teenagers. They feel that adults understand and trust them and appreciate pleasurable activities.

High school students waiver between selfless idealism and self-centered realism. Many of them, idealistically, hope to improve the plight of the downtrodden by being great statesmen, doctors, educators, or social workers, while still refusing to be philanthropic toward those in their immediate world. Others have experienced so few successes in life, both in and out of school, that aspirations no longer exist. The challenge to respond to this tremendous range of needs is almost overwhelming, but achievable when schools are structured in ways that stress personal contact with students. Teaching and learning is a team effort, not a one person endeavor with the student expected to "do or die."

At the high school level, students are better oral communicators than written communicators even though they have had many more hours of formal training in the development and practice of writing skills than they have had for oral skills. They can think formally, deal with abstractions, and practice higher-level thinking skills. Learning takes on more meaning when students see some purpose. Some will be able to see the purpose; others will need more assistance in making connections. Even though they may have studied world history, economics, and geography, life experiences with the content of these disciplines have not been sufficient for many of them to see the interrelatedness of human beings. They tend to be parochial in their thinking, yet global in their consumption. They may buy Japanese produced steel in a Japanese designed car, clothes from Korea, shoes from Brazil or Italy, electronic components from the Orient, and optical

Individuality is as evident in high schools as in the kindergarten. Instruction, to be successful, must accommodate this tremendous diversity.

equipment from Germany, while espousing a philosophy which says "buy American." While their childhood vocational ambitions may have become less ephemeral, they continue to consider a variety of careers and ambitions.

The characteristics which describe high school students fall on a continuum that ranges from quiet, well-behaved, responsible, helpful, motivated, hard-working, intelligent, achieving, calm, popular, and happy on one end to restless, aggressive, underachieving, overactive, undependable, dissatisfied, and unhappy on the other end. Their physical size tends to create an assumption that they are mature responsible adults; however, life experiences have varied greatly. Individuality is as evident in high school as in kindergarten. Instruction, to be successful, must accommodate this tremendous diversity.

FOR FURTHER THOUGHT:

1. Should the final year of high school be replaced with specialized vocational training, precollege preparation, or on-the-job training?

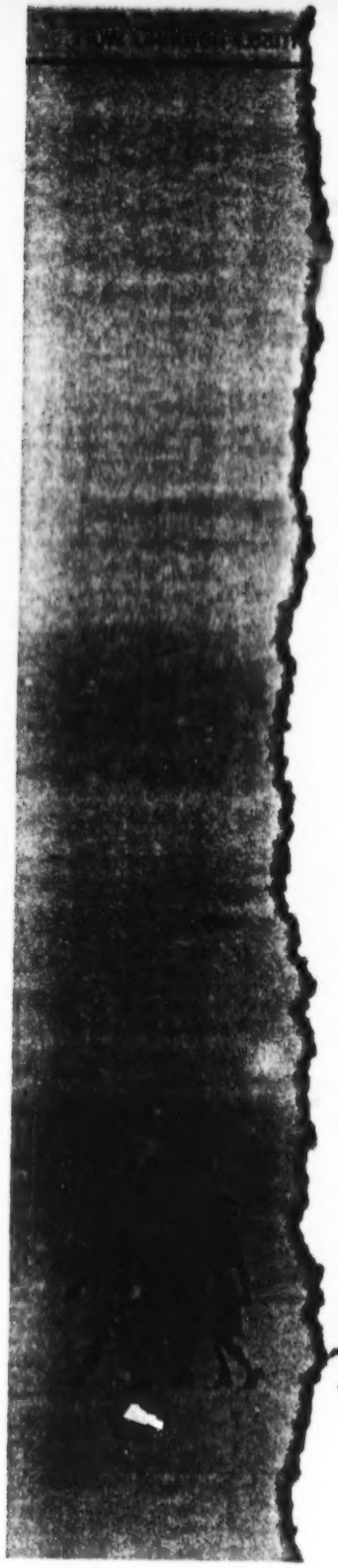
2. Can the high school meet learner needs without changing from the lecture/exercise/test syndrome to active student involvement in the disciplines?

SUMMARY

The learners in our schools are a diverse population. They span many years in age. The school years are a period of rapid growth and change, and children progress at differing paces. This is reflected in their physical growth, emotional and social growth patterns, and intellectual development. These differences are observable within age groups, as well as among age groups.

The ways in which the learners acquire knowledge and the ease of acquisition also varies greatly. Some students read and assimilate new information with little difficulty; others need more practical application and interaction to develop understanding. No one method of instruction will accommodate the learning styles and capabilities within a group of students.

Learners range from highly motivated and self-directed to those who see little need to be in school. For some, life experiences have been encouraging and supportive; for others, even the basic needs for food, clothing, shelter, and emotional support have been neglected. The circumstances they have experienced have created a broad range of attitudes. Finding ways to reach the nonmotivated, while challenging those who excel, is not an easy task.



No single solution can be offered, but an understanding of learners provides a basis for addressing their needs.

The Indiana Curriculum Advisory Council of the State Board of Education continues to address issues and concerns of education in the 21st Century. Among continuing issues which need to be addressed are why some students cannot or do not want to learn what teachers try to teach and what initiatives are needed to truly implement lifelong, personalized learning. The Committee on Personalized Learning looks forward to the challenge of learning about discoveries on these issues with you, our audience, for we all have a vested interest in seeing that people learn what is necessary to function productively and happily throughout their lives.

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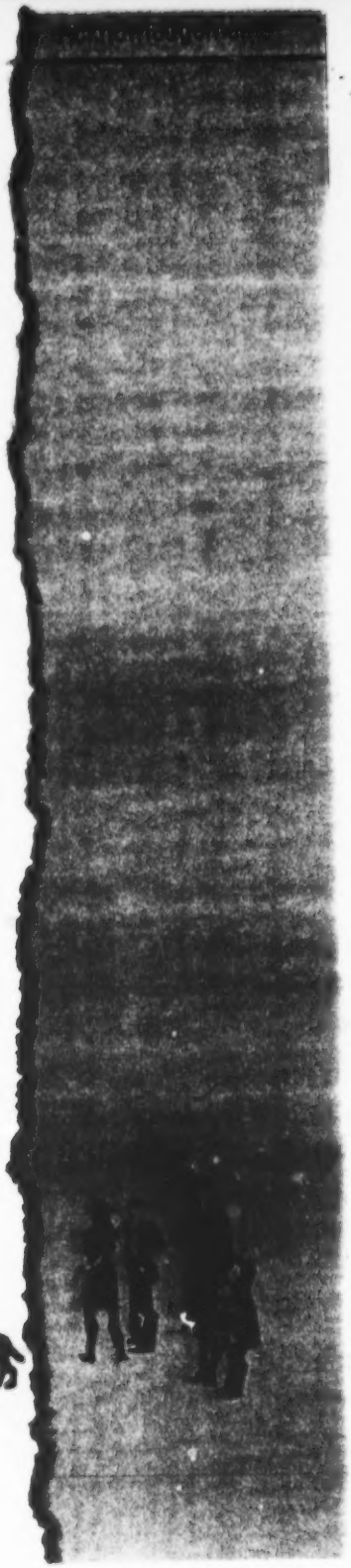
Fred W. Rockwood, Council Chairman

John A. Harrold, Council Executive Director



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